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EXAMINER	
MOMPER, ANNA M	
ART UNIT	PAPER NUMBER
3657	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,087	SATO ET AL.	
	Examiner	Art Unit	
	ANNA MOMPER	3657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/19/2009 has been entered.

Response to Amendment

2. Amendment received 6/19/2009 has been entered. Claims 1 and 3 have been amended. Claims 13-17 have been added.

Response to Arguments

3. Applicant's arguments with filed 6/19/2009 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-2, 6,10, 13-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (WO 03/050436 A1, see US 7,189,174 B2 for English equivalent cited for this rejection) in view of Merelli (US 6,244,982 B2).

As per claim 1, Yamamoto et al. discloses a chain tensioner (Fig. 2) comprising:

a housing (1) formed with a cylinder chamber (11), a plunger (3) slidably mounted in said cylinder chamber, said cylinder chamber defining a pressure chamber behind said plunger (Fig. 2, the cylinder chamber defines a pressure chamber 9 which is within the inside of the hollow plunger and in the space behind the plunger);

a spring (5) mounted in said cylinder chamber and biasing said plunger outwardly of said chamber (Col. 7, Ln. 30-38);

a retraction restrictor mechanism (7) provided between said housing and said plunger (Fig. 2) for preventing said plunger from retracting toward a closed end of said cylinder chamber beyond a predetermined distance (Col. 10, Ln. 6-26);

an oil supply passage (15) formed in said housing and communicating with said pressure chamber (Col. 7, Ln. 8-10), said oil supply passage being configured to supply a hydraulic oil such that a pushing force applied to said plunger is dampened by the hydraulic oil (Col. 7, Ln. 38-45);

wherein the retraction restrictor mechanism comprises a resistor ring (71).

Yamamoto et al. fails to explicitly disclose a ring fitting groove formed in an outer periphery of said plunger near a rear end of said plunger located inside said cylinder chamber and a radially elastically deformable elastic ring received in said ring fitting groove in a radially compressed state and an engaging groove formed in an inner periphery of said cylinder chamber near an open end of said cylinder chamber, said elastic ring being engagable in said engaging groove and being configured to radially expand in said engaging groove such that an inner diameter of said elastic ring is smaller than an outer diameter of said plunger and said elastic ring is disposed in both said engaging groove and said ring fitting groove to prevent axial movement of said plunger in a direction away from said closed end of said cylinder chamber, wherein the resistor ring and elastic ring constitute separate structures such that the elastic ring is operable to prevent axial movement of the plunger independent of the resistor ring.

Merelli discloses a chain tensioner (20) wherein a plunger (31) has a ring fitting groove (312) formed in an outer periphery of said plunger near a rear end of said plunger located inside said cylinder chamber (Fig. 2) and a radially elastically deformable elastic ring (313) received in said ring fitting groove in a radially compressed state (implicitly taught that the ring would have to be compressed in order to engage the groove 322) and an engaging groove (322) formed in an inner periphery of said cylinder chamber near an open end of said cylinder chamber (Fig. 2), said elastic ring being engagable in said engaging groove and being configured to radially expand in said engaging groove such that an inner diameter of said elastic ring is smaller than an outer diameter of said plunger and said elastic ring is disposed in both said engaging groove

and said ring fitting groove to prevent axial movement of said plunger in a direction away from said closed end of said cylinder chamber (Fig. 2, Col. 3, Ln. 18-25, LN. 60-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tensioner of Yamamoto et al. to include an elastic ring, a ring fitting groove on the outer periphery of the plunger and an engaging groove in the inner periphery of the cylinder, as taught by Merelli, for the purpose of preventing the plunger from extending outward more than a predetermined amount.

As per claim 2, Merelli et al. further discloses the engaging groove has a first axial end surface and a tapered second axial end surface, said tapered second axial end surface being axially opposed to said first axial end surface and being disposed closer to said closed end of said cylinder chamber than said first axial end surface (Fig. 2, Col. 3, Ln. 31-37).

As per claims 6 and 10, Merelli et al. is silent as to the material of which the elastic ring is made from, however it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tensioner of Yamamoto et al. to include the elastic ring being made from resin, since it has been held that to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

As per claim 13, Yamamoto et al. discloses the resistor ring (71) is disposed at least partially within a ring mounting groove (18), said ring mounting groove being formed in said inner periphery of the cylinder chamber (Col. 7, Ln. 4-29, Fig. 3).

Merelli et al. further discloses elastic ring (313) is at least partially within said ring fitting groove (312) such that the elastic ring is movable toward the open end of the cylinder.

As per claims 14 and 16, Merelli et al. discloses the radially compressed state of the elastic ring constitutes a state in which the elastic ring is compressed by the inner periphery of said cylinder chamber (Col. 3, Ln. 23-25, Ln. 60-67).

As per claim 17, Yamamoto et al. discloses a chain tensioner (Fig. 2) comprising:

a housing (1) formed with a cylinder chamber (11), a plunger (3) slidably mounted in said cylinder chamber, said cylinder chamber defining a pressure chamber behind said plunger (Fig. 2, the cylinder chamber defines a pressure chamber 9 which is within the inside of the hollow plunger and in the space behind the plunger);

a spring (5) mounted in said cylinder chamber and biasing said plunger outwardly of said chamber (Col. 7, Ln. 30-38);

a retraction restrictor mechanism (7) provided between said housing and said plunger (Fig. 2) for preventing said plunger from retracting toward a closed end of said cylinder chamber beyond a predetermined distance (Col. 10, Ln. 6-26);

an oil supply passage (15) formed in said housing and communicating with said pressure chamber (Col. 7, Ln. 8-10), said oil supply passage being configured to supply a hydraulic oil such that a pushing force applied to said plunger is dampened by the hydraulic oil (Col. 7, Ln. 38-45);

wherein the retraction restrictor mechanism comprises a resistor ring (71).

Yamamoto et al. fails to explicitly disclose a ring fitting groove formed in an outer periphery of said plunger near a rear end of said plunger located inside said cylinder chamber and a radially elastically deformable elastic ring received in said ring fitting groove in a radially compressed state and an engaging groove formed in an inner periphery of said cylinder chamber near an open end of said cylinder chamber, said elastic ring being engagable in said engaging groove and being configured to radially expand in said engaging groove such that an inner diameter of said elastic ring is smaller than an outer diameter of said plunger and said elastic ring is disposed in both said engaging groove and said ring fitting groove to prevent axial movement of said plunger in a direction away from said closed end of said cylinder chamber, wherein the resistor ring and elastic ring constitute separate structures such that the elastic ring is operable to prevent axial movement of the plunger independent of the resistor ring.

Merelli discloses a chain tensioner (20) wherein a plunger (31) has a ring fitting groove (312) formed in an outer periphery of said plunger near a rear end of said plunger located inside said cylinder chamber (Fig. 2) and a radially elastically deformable elastic ring (313) received in said ring fitting groove in a radially compressed state (implicitly taught that the ring would have to be compressed in order to engage the groove 322) and an engaging groove (322) formed in an inner periphery of said cylinder chamber near an open end of said cylinder chamber (Fig. 2), said elastic ring being engagable in said engaging groove and being configured to radially expand in said engaging groove such that an inner diameter of said elastic ring is smaller than an outer diameter of said plunger and said elastic ring is disposed in both said engaging groove

and said ring fitting groove to prevent axial movement of said plunger in a direction away from said closed end of said cylinder chamber (Fig. 2, Col. 3, Ln. 18-25, LN. 60-67), and wherein the radially compressed state of the elastic ring constitutes a state in which the elastic ring is compressed by the inner periphery of said cylinder chamber (Col. 3, Ln. 23-25, Ln. 60-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tensioner of Yamamoto et al. to include an elastic ring, a ring fitting groove on the outer periphery of the plunger and an engaging groove in the inner periphery of the cylinder, as taught by Merelli, for the purpose of preventing the plunger from extending outward more than a predetermined amount.

7. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (WO 03/050436 A1, see US 7,189,174 B2 for English equivalent cited for this rejection) in view of Merelli (US 6,244,982 B2) and further in view of Kuznets et al. (US 5,700,214).

As per claims 8 and 9, Merelli et al. is silent as to the shape and material of the elastic material, however it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tensioner of Yamamoto et al. to include the elastic ring being made from steel, since it has been held that to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin,* 125 USPQ 416.

Kuznets et al. discloses a hydraulic tensioner (10) in which a retainer ring (86) has a circular cross section (Fig. 3, Fig. 3B) and is a C-shaped member with two separate ends (Fig. 3A).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the chain tensioner of Yamamoto et al. to include the retainer ring being a C-shaped member, as taught by Kuznets et al., for the purpose of allowing for thermal expansion. Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the elastic ring being a c-shaped member, since it has been held that it is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that a particular configuration was significant. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

8. Claims 3-4 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayakawa et al. (US 7,037,229) in view of Merelli (US 6,244,982 B2).

Hayakawa et al. discloses a chain tensioner (Fig. 5) comprising:

a housing (30) formed with a cylinder chamber (31), a plunger (32) slidably mounted in said cylinder chamber (Fig. 5), said cylinder chamber defining a pressure chamber behind said plunger (34, Col. 5, Ln. 25-34);

a spring (33) mounted in said cylinder chamber and biasing said plunger outwardly away from said cylinder chamber (Col. 5, Ln. 25-34);

a retraction restrictor (43, 45) mechanism for preventing said plunger from retracting toward a closed end of said cylinder chamber beyond a predetermined distance (Col. 5, Ln. 44-53);

an oil supply passage (35) formed in said housing and communicating with said pressure chamber (Fig. 5), said oil supply passage configured to supply a hydraulic oil such that a pushing force applied to said plunger is dampened by the hydraulic oil;

wherein a bore (42) is formed in said plunger such that said plunger includes an outer surface and an inner surface, wherein a screw rod (44) is disposed at least partially within said bore (Col. 5, Ln. 44-53),

wherein said retraction restrictor mechanism includes an internal thread (43) formed in said bore on said inner surface and an external thread (45) formed on said screw rod (Col. 5, Ln. 44-53).

Hayakawa et al. fails to explicitly disclose a ring fitting groove formed in an outer periphery of said plunger near a rear end of said plunger located inside said cylinder chamber and a radially elastically deformable elastic ring received in said ring fitting groove in a radially compressed state and an engaging groove formed in an inner periphery of said cylinder chamber near an open end of said cylinder chamber, said elastic ring being engagable in said engaging groove and being configured to radially expand in said engaging groove such that an inner diameter of said elastic ring is smaller than an outer diameter of said plunger and said elastic ring is disposed in both said engaging groove and said ring fitting groove to prevent axial movement of said plunger in a direction away from said closed end of said cylinder chamber, wherein the resistor ring and elastic ring constitute separate structures such that the elastic ring is operable to prevent axial movement of the plunger independent of the resistor ring.

Merelli discloses a chain tensioner (20) wherein a plunger (31) has a ring fitting groove (312) formed in an outer periphery of said plunger near a rear end of said plunger located inside said cylinder chamber (Fig. 2) and a radially elastically deformable elastic ring (313) received in said ring fitting groove in a radially compressed state (implicitly taught that the ring would have to be compressed in order to engage the groove 322) and an engaging groove (322) formed in an inner periphery of said cylinder chamber near an open end of said cylinder chamber (Fig. 2), said elastic ring being engagable in said engaging groove and being configured to radially expand in said engaging groove such that an inner diameter of said elastic ring is smaller than an outer diameter of said plunger and said elastic ring is disposed in both said engaging groove and said ring fitting groove to prevent axial movement of said plunger in a direction away from said closed end of said cylinder chamber (Fig. 2, Col. 3, Ln. 18-25, LN. 60-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tensioner of Yamamoto et al. to include an elastic ring, a ring fitting groove on the outer periphery of the plunger and an engaging groove in the inner periphery of the cylinder, as taught by Merelli, for the purpose of preventing the plunger from extending outward more than a predetermined amount.

As per claim 4, Merelli et al. further discloses the engaging groove has a first axial end surface and a tapered second axial end surface, said tapered second axial end surface being axially opposed to said first axial end surface and being disposed

closer to said closed end of said cylinder chamber than said first axial end surface (Fig. 2, Col. 3, Ln. 31-37).

As per claims 11 and 12, Merelli et al. is silent as to the material of which the elastic ring is made from, however it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tensioner of Yamamoto et al. to include the elastic ring being made from resin, since it has been held that to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

9. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayakawa et al. (US 7,037,229) in view of Merelli (US 6,244,982 B2) and further in view of Kuznets et al. (US 5,700,214).

As per claims 8 and 9, Merelli et al. is silent as to the shape and material of the elastic material, however it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tensioner of Yamamoto et al. to include the elastic ring being made from steel, since it has been held that to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Kuznets et al. discloses a hydraulic tensioner (10) in which a retainer ring (86) has a circular cross section (Fig. 3, Fig. 3B) and is a C-shaped member with two separate ends (Fig. 3A).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the chain tensioner of Yamamoto et al. to include the retainer ring

being a C-shaped member, as taught by Kuznets et al., for the purpose of allowing for thermal expansion. Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the elastic ring being a c-shaped member, since it has been held that it is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that a particular configuration was significant. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayakawa et al. (US 7,037,229) in view of Merelli (US 6,244,982 B2) and further in view of Poiret et al. (US 6,849,012 B2).

Merelli fails to explicitly disclose the radially expanded state of said elastic ring constitutes a state in which the elastic ring is expanded by a force external to the elastic ring.

Poiret et al. discloses a tensioner (1) having an elastic ring (16) wherein the expansion and compression of the elastic ring is facilitated by means of tapered edges (21, 29) of grooves (14, 24) located in the inner periphery of the housing (1) and the outer periphery of the plunger (5).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the tensioner of Hayakawa et al. to include the elastic ring is expanded by a force external to the elastic ring, as taught by Poiret et al., for the purpose of ensuring and facilitating the expansion of the elastic ring.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNA MOMPER whose telephone number is (571)270-5788. The examiner can normally be reached on M-F 6:00-3:30 (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bradley T King/
Primary Examiner, Art Unit 3657

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